

What is claimed is:

1. A computer-implemented system for designing an interior section of a passenger vehicle to accommodate objects for the interior section of the passenger vehicle, comprising

a) a database comprising a digital definition of the interior section of the passenger vehicle and parameters related to the objects;

b) a computer-aided design system configured to display a visual model of the interior section of the passenger vehicle;

c) a user interface capable of receiving user input from a user reflecting a first change to the interior section of the passenger vehicle;

d) a processor responsive to the user input by using said digital definition and said parameters to (i) determine whether a second change to the interior section of the passenger vehicle is necessary because of the first change to the interior section of the passenger vehicle, and (ii) execute the second change to the interior section of the passenger vehicle by updating said digital definition.

2. The system of claim 1, wherein said digital definition comprises a plurality of data objects representing different aspects of the interior.

3. The system of claim 2, wherein a first one of said data objects contains information regarding a second data object representing an aspect of the interior that has a relationship with an aspect of the interior represented by said first data object.

4. The system of claim 3, wherein said processor is capable of modifying

said second data object in response to a change made by the system to said first data object, and said processor uses said information regarding said second data object to determine whether said second data object should be modified.

5. The system of claim 2, wherein each of said data objects has one of a plurality of types, and a first of said types represents a first portion of the vehicle that is fully contained within a second portion of the vehicle represented by a second of said types.

6. The system of claim 5, wherein said processor is capable of responding to a change to a data object having said first type and said processor is capable of responding to a change to a data object having said second type.

7. The system of claim 1, further comprising a means for exporting a portion of the contents of said database in a format that can be used with a computer-aided design system different from said computer aided design system of said system.

8. The system of claim 1, further comprising a means for determining the maximum number of seats that can fit in a section of the interior, based on said parameters and the location of other objects in the interior.

9. The system of claim 1, further comprising a means for determining a course of action that, if taken, will allow the addition of one extra row of seats, while maintaining compliance with said parameters.

10. A computer-implemented method for designing an interior section of a passenger vehicle to accommodate objects for the interior section of the passenger vehicle, comprising

a) storing a digital definition of the interior section of the passenger vehicle and parameters related to the objects;

b) displaying a visual model of the interior section of the passenger vehicle;

c) receiving user input from a user reflecting a first change to the interior section of the passenger vehicle;

d) determining in response to the user input and said digital definition and said parameters whether a second change to the interior section of the passenger vehicle is necessary because of the first change to the interior section of the passenger vehicle; and

e) executing the second change to the interior section of the passenger vehicle by updating said digital definition.

11. The method of claim 10, wherein said digital definition comprises a plurality of data objects representing different aspects of the interior.

12. The method of claim 11, wherein a first one of said data objects contains information regarding a second data object representing an aspect of the interior that has a relationship with an aspect of the interior represented by said first data object.

13. The method of claim 12, further comprising the steps of modifying said second data object in response to a change made to said first data object, and

using said information regarding said second data object to determine whether said second data object should be modified.

14. The method of claim 11, wherein each of said data objects has one of a plurality of types, and a first of said types represents a first portion of the vehicle that is fully contained within a second portion of the vehicle represented by a second of said types.

15. The method of claim 10, further comprising the step of exporting a portion of said digital definition in a format that can be used with a computer-aided design system.

16. The method of claim 10, further comprising the step of determining the maximum number of seats that can fit in a section of the interior, based on said parameters and the location of other objects in the interior.

17. The method of claim 10, further comprising the step of determining a course of action that, if taken, will allow the addition of one extra row of seats, while maintaining compliance with said parameters.

18. A computer-implemented system for designing an interior section of a passenger vehicle to accommodate objects for the interior section of the passenger vehicle, comprising

a) means for storing a digital definition of the interior section of the passenger vehicle and parameters related to the objects;

b) means for displaying a visual model of the interior section of the

passenger vehicle;

c) means for receiving user input from a user reflecting a first change to the interior section of the passenger vehicle;

d) means for determining in response to the user input and said digital definition whether a second change to the interior section of the passenger vehicle is necessary because of the first change to the interior section of the passenger vehicle; and

e) means for executing the second change to the interior section of the passenger vehicle by updating said digital definition.

19. The system of claim 18, wherein said digital definition comprises a plurality of data objects representing different aspects of the interior.

20. The system of claim 19, wherein a first one of said data objects contains information regarding a second data object representing an aspect of the interior that has a relationship with an aspect of the interior represented by said first data object.

21. The system of claim 20, wherein said means for determining is capable of modifying said second data object in response to a change made by the system to said first data object, and said means for determining uses said information regarding said second data object to determine whether said second data object should be modified.

22. The system of claim 19, wherein each of said data objects has one of a plurality of types, and a first of said types represents a first portion of the vehicle

that is fully contained within a second portion of the vehicle represented by a second of said types.

23. The system of claim 22, wherein said means for determining is capable of responding to a change to a data object having said first type and said means for determining is capable of responding to a change to a data object having said second type.

24. The system of claim 18, further comprising a means for exporting a portion of the contents of said database in a format that can be used by a means for displaying different from said means for displaying of said system.

25. The system of claim 18, further comprising a means for determining the maximum number of seats that can fit in a section of the interior, based on said parameters and the location of other objects in the interior.

26. The system of claim 18, further comprising a means for determining a course of action that, if taken, will allow the addition of one extra row of seats, while maintaining compliance with said parameters.

27. A computer-readable medium comprising code capable of instructing a computer to perform a method for designing an interior section of a passenger vehicle to accommodate objects for the interior section of the passenger vehicle, said method comprising the steps of:

a) storing a digital definition of the interior section of the passenger vehicle and parameters related to the objects;

b) displaying a visual model of the interior section of the passenger vehicle;

c) receiving user input from a user reflecting a first change to the interior section of the passenger vehicle;

d) determining in response to the user input and said digital definition and parameters whether a second change to the interior section of the passenger vehicle is necessary because of the first change to the interior section of the passenger vehicle; and

e) executing the second change to the interior section of the passenger vehicle by updating said digital definition.

28. The computer-readable medium of claim 27, wherein said digital definition comprises a plurality of data objects representing different aspects of the interior.

29. The computer-readable medium of claim 28, wherein a first one of said data objects contains information regarding a second data object representing an aspect of the interior that has a relationship with an aspect of the interior represented by said first data object.

30. The computer-readable medium of claim 29, wherein said method further comprises the steps of modifying said second data object in response to a change made to said first data object, and using said information regarding said second data object to determine whether said second data object should be modified.

31. The computer-readable medium of claim 28, wherein each of said data

objects has one of a plurality of types, and a first of said types represents a first portion of the vehicle that is fully contained within a second portion of the vehicle represented by a second of said types.

32. The computer-readable medium of claim 27, wherein said method further comprises the step of exporting a portion of said digital definition in a format that can be used by a computer-aided design system.

33. The computer-readable medium of claim 27, wherein said method further comprises the step of determining the maximum number of seats that can fit in a section of the interior, based on said parameters and the location of other objects in the interior.

34. The computer-readable medium of claim 27, wherein said method further comprises the step of determining a course of action that, if taken, will allow the addition of one extra row of seats, while maintaining compliance with said parameters.

35. A computer-implemented system for designing a configurable space to accommodate objects for the interior section of the passenger vehicle, comprising

a) a database comprising a digital definition of the configurable space and parameters related to the objects;

b) a computer-aided design system configured to display a visual model of the configurable space;

c) a user interface capable of receiving user input from a user reflecting a first change to the configurable space;



d) a processor responsive to the user input by using said digital definition and said parameters to (i) determine whether a second change to the configurable space is necessary because of the first change to the configurable space, and (ii) execute the second change to the configurable space by updating said digital definition.

36. The system of claim 35, wherein said digital definition comprises a plurality of data objects representing different aspects of the configurable space.

37. The system of claim 36, wherein a first one of said data objects contains information regarding a second data object representing an aspect of the configurable space that has a relationship with an aspect of the configurable space represented by said first data object.

38. The system of claim 37, wherein said processor is capable of modifying said second data object in response to a change made by the system to said first data object, and said processor uses said information regarding said second data object to determine whether said second data object should be modified.

39. The system of claim 36, wherein each of said data objects has one of a plurality of types, and a first of said types represents a first portion of the configurable space that is fully contained within a second portion of the configurable space represented by a second of said types.

40. The system of claim 39, wherein said processor is capable of responding to a change to a data object having said first type and said processor is capable of

responding to a change to a data object having said second type.

41. The system of claim 35, further comprising a means for exporting a portion of the contents of said database in a format that can be used by a computer-aided design system different from said computer aided design system of said system.

42. The system of claim 35, further comprising a means for determining the maximum number of seats that can fit in a section of the configurable space, based on said parameters and the location of other objects in the configurable space.

43. The system of claim 35, further comprising a means for determining a course of action that, if taken, will allow the addition of one extra row of seats, while maintaining compliance with said parameters.

44. A computer-implemented method for designing a configurable space to accommodate objects for the configurable space, comprising

- a) storing a digital definition of the configurable space and parameters related to the objects;
- b) displaying a visual model of the configurable space;
- c) receiving user input from a user reflecting a first change to the configurable space;
- d) determining in response to the user input and said digital definition and said parameters whether a second change to the configurable space is necessary because of the first change to the configurable space; and

e) executing the second change to the configurable space by updating said digital definition.

45. The method of claim 44, wherein said digital definition comprises a plurality of data objects representing different aspects of the configurable space.

46. The method of claim 45, wherein a first one of said data objects contains information regarding a second data object representing an aspect of the configurable space that has a relationship with an aspect of the configurable space represented by said first data object.

47. The method of claim 46, further comprising the steps of modifying said second data object in response to a change made to said first data object, and using said information regarding said second data object to determine whether said second data object should be modified.

48. The method of claim 45, wherein each of said data objects has one of a plurality of types, and a first of said types represents a first portion of the configurable space that is fully contained within a second portion of the configurable space represented by a second of said types.

49. The method of claim 44, further comprising the step of exporting a portion of said digital definition in a format that can be used by a computer-aided design system.

50. The method of claim 44, further comprising the step of determining the

maximum number of seats that can fit in a section of the configurable space, based on said parameters and the location of other objects in the configurable space.

51. The method of claim 44, further comprising the step of determining a course of action that, if taken, will allow the addition of one extra row of seats, while maintaining compliance with said parameters.

52. A computer-implemented system for designing a configurable space to accommodate objects for the configurable space, comprising

- a) means for storing a digital definition of the configurable space and parameters related to the objects;
- b) means for displaying a visual model of the configurable space;
- c) means for receiving user input from a user reflecting a first change to the configurable space;
- d) means for determining in response to the user input and said digital definition whether a second change to the configurable space is necessary because of the first change to the configurable space; and
- e) means for executing the second change to the configurable space by updating said digital definition.

53. The system of claim 52, wherein said digital definition comprises a plurality of data objects representing different aspects of the configurable space.

54. The system of claim 53, wherein a first one of said data objects contains information regarding a second data object representing an aspect of the

configurable space that has a relationship with an aspect of the configurable space represented by said first data object.

55. The system of claim 54, wherein said means for determining is capable of modifying said second data object in response to a change made by the system to said first data object, and said means for determining uses said information regarding said second data object to determine whether said second data object should be modified.

56. The system of claim 53, wherein each of said data objects has one of a plurality of types, and a first of said types represents a first portion of the configurable space that is fully contained within a second portion of the configurable space represented by a second of said types.

57. The system of claim 56, wherein said means for determining is capable of responding to a change to a data object having said first type and said means for determining is capable of responding to a change to a data object having said second type.

58. The system of claim 52, further comprising a means for exporting a portion of the contents of said database in a format that can be used by a means for displaying different from said means for displaying of said system.

59. The system of claim 52, further comprising a means for determining the maximum number of seats that can fit in a section of the configurable space, based on said parameters and the location of other objects in the configurable

space.

60. The system of claim 52, further comprising a means for determining a course of action that, if taken, will allow the addition of one extra row of seats, while maintaining compliance with said parameters.

61. A computer-readable medium comprising code capable of instructing a computer to perform a method for designing a configurable space to accommodate objects for the configurable space, said method comprising the steps of:

- a) storing a digital definition of the configurable space and parameters related to the objects;
- b) displaying a visual model of the configurable space;
- c) receiving user input from a user reflecting a first change to the configurable space;
- d) determining in response to the user input and said digital definition and parameters whether a second change to the configurable space is necessary because of the first change to the configurable space; and
- e) executing the second change to the configurable space by updating said digital definition.

62. The computer-readable medium of claim 61, wherein said digital definition comprises a plurality of data objects representing different aspects of the configurable space.

63. The computer-readable medium of claim 62, wherein a first one of said

data objects contains information regarding a second data object representing an aspect of the configurable space that has a relationship with an aspect of the configurable space represented by said first data object.

64. The computer-readable medium of claim 63, wherein said method further comprises the steps of modifying said second data object in response to a change made to said first data object, and using said information regarding said second data object to determine whether said second data object should be modified.

65. The computer-readable medium of claim 62, wherein each of said data objects has one of a plurality of types, and a first of said types represents a first portion of the configurable space that is fully contained within a second portion of the configurable space represented by a second of said types.

66. The computer-readable medium of claim 61, wherein said method further comprises the step of exporting a portion of said digital definition in a format that can be used by a computer-aided design system.

67. The computer-readable medium of claim 61, wherein said method further comprises the step of determining the maximum number of seats that can fit in a section of the configurable space, based on said parameters and the location of other objects in the configurable space.

68. The computer-readable medium of claim 61, wherein said method further comprises the step of determining a course of action that, if taken, will allow the addition of one extra row of seats, while maintaining compliance with said

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parameters.